YAKIMA BASIN SIDE CHANNEL SURVEY AND REHABILITATION 9704700

SHORT DESCRIPTION:

This reach of the watershed provides the "last stop" for summer migrating chinook parr. Below this reach, water quality degrades to lethal levels for all native salmonids. Historic shoreline mismanagement has blocked tributaries, elimited side channel habitat, removed riparian vegetation, and 7.8 miles of levees have been constructed immediately adjacent to the ordinary high water mark. Vegetation on levees is currently removed once the diameter at breast height exceeds two inches. The project would reconnect tributaries and side channels, create new side channels, construct instream deflectors along straightened reaches that are constrained between levees, and overbuild portions of levees such that riparian trees will be permitted to thrive.

SPONSOR/CONTRACTOR: YIN
Yakama Indian Nation
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SUB-CONTRACTORS:

Applicant will contract, through competitive bidding, with capable general contractor(s) for excavation and structure placement. Contractor has not been identified. The intent of the project is to create features that will not require long-term maintenance. YIN will pursue additional funding from Fish and Wildlife Program and/or other sources if maintenance is ever needed.

GOALS

GENERAL:

Supports a healthy Columbia basin, Maintains biological diversity, Maintains genetic integrity, Increases run sizes or populations, Provides needed habitat protection

WATERSHED:

Implementation

NPPC PROGRAM MEASURE:

no response

RELATION TO MEASURE:

Project is aimed at restoring and enhancing rearing habitat in an effort to increase life history diversity and overall egg to smolt survival for spring chinook salmon. Portions of the project will be implemented on private lands and will accordingly require cooperative agreements with landowners. In some cases land and/or easements may be purchased. Providing the landowner compensation accomplishes the habitat restoration objectives while avoiding the confrontational problems of a fish versus private property rights debate.

TARGET STOCK	LIFE STAGE	MGMT CODE (see below)
Coho	Fry through smolt	A, S
Upper Yakima, Naches , and American River Spring Chinook	Fry through smolt	N, S

AFFECTED STOCK	BENEFIT OR DETRIMENT
Rainbow Trout	Beneficial
Westslope Cutthroat	Beneficial

BACKGROUND

Stream name:
Yakima and Naches Rivers

Subbasin:
Yakima

Stream miles affected:
8

Land ownership:
public and private

HISTORY:
Provide any background relevant to prioritization (e.g. historic costs if the activity was previously funded under other project numbers, cost shares received from other agencies, major non-biological products or conclusions.) There are separate spaces below for biological products, reports, and need for the project.

PURPOSE AND METHODS

SPECIFIC MEASUREABLE OBJECTIVES:
Post-project juvenile densities will be quantified in treated areas.

CRITICAL UNCERTAINTIES:
Private landowners may be unwilling to participate. Structural modifications may fail. Revegetation efforts may prove unsuccessful.

BIOLOGICAL NEED:
managers believe rearing habitat for juvenile fish is severely limited in the Yakima Basin. Further, it is believed that this reach of the river provides the "last chance" for summer migrating juveniles, because downstream water quality degrades to lethal levels. This project would substantially improve rearing habitat in this reach.

HYPOTHESIS TO BE TESTED:
Developing more permanent access and preventing stranding will improve egg to smolt survival.

ALTERNATIVE APPROACHES:
Totally removing existing dikes was judged to be culturally ucceptable at the present time. Future, more enlightened generations may value the river as more than as an irrigation cal and drainage ditch as the present generation seems to. It is, however, impossible to forecast such an awakening with much precision. Therefore, the project proponents have chosen to embark upon the subject coping strategy.

JUSTIFICATION FOR PLANNING:
N/A. The project focuses on implementation of habitat improvement features.

METHODS:
This project will include remote sensing, ground water evaluation, and plat map review to determine site candidacy. Construction will involve excavation, installation of grade control structures, addition of root wads and other available cover features, construction of deflectors and installation of fish ways. At sites where land acquisition or easements are used to protect existing habitat features, work will entail some revegetation using standard techniques. Land acquisition will be used as a tool only on private lands, and then only after an effort has been made to persuade affected landowner to accommodate channel shifts. Where cooperation can not be procured, easements or land purchase will be sought to avoid probable land owner efforts to relocate the river channel. Modifications to levees will be coordinated with Yakima County Public Works Department and the Army Corps of Engineers. Reconnection and construction of side channels will be coordinated with private landowners, and regulatory agencies. All specific project sites will have a design and monitoring plan completed by the grantee or a subcontractor with restoration experience. The plans will include a description of existing conditions, actions needed to restore the side channels and ripar ian areas to target conditions, logistics to complete the work and expected benefits from the work. The monitoring plan will include an assessment of habitat conditions and fish utilization and density after project completion. The more important measure of the effectiveness of the subject and companion projects will be the evaluation and monitoring of longer term trends in natural smolt production and productivity. Success at this scale will be determined largely through spawner surveys, adult counts, and Chandler smolt counts. Pre-project data (1981-1997) will used as the baseline for determining success of this and other sub-basin wide efforts.

PLANNED ACTIVITIES

SCHEDULE:

Planning Phase **Start** As soon as possible **End** TBD **Subcontractor** unknown

Task Survey the reach by remote-sensing. Ground-truth conclusions, develop a data base of potential restoration sites. Develop a suite of restorative measures.

Implementation Phase **Start** a.10/97; b.12/97; c. 2/98 **End** a.12/97; b. 2/98; c.10/01 **Subcontractor**

Task a. SEPA/NEPA compliance; b. Land/easement acquisition; c. construction and reveg

PROJECT COMPLETION DATE:
1998

CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:
Private landowner consent, hydraulic changes during planning, permit processing, and constraints imposed by other agencies may cause delays to project implementation. Construction costs may be altered by flooding.

OUTCOMES, MONITORING AND EVALUATION

SUMMARY OF EXPECTED OUTCOMES

Present utilization and convservation potential of target population or area:
Construction of levees has severely truncated available rearing habitat in the project reach. Riparian function has similarly been impacted. Much of the land behind the levees has been developed, with the exception of roughly one river mile, on one side of the river. A non-motorized greenway trail has been constructed for the length of the project reach, on one side of the river. The trail foundation is extremely interested in implementing habitat improvements, tied to ongoing public education efforts.

Assumed historic status of utilization and conservation potential:
Depending on the source, estimates of historical spring chinook abundance vary from 100,000 to 200,000 compared to recent returns of less than 500 to around 9,000. Aerial photographs from the 1920's indicate that this reach was characterized by numerous, parallel channels bounded by lush riparian vegetation. The floodplain was unconfined. Several tributaries flowed at extremely low gradients to the mainstem. These too were bounded by riparian forests. Given these conditions, fish managers believe that countless thousands of salmon parr and smolts utilized this reach for summer/fall/winter rearing.

Long term expected utilization and conservation potential for target population or habitat:
The long term management goals for spring chinook and coho salmon are average escapements of 26,300 and 5,000 respectively. The long-term habitat management goal for floodplains and attendant habitat features, by order of priority, are to prevent additional encroachment and restore floodplain function by not replacing flood control structures damaged by floods, deliberate reclamation of floodplains, reclamation of stranded floodplain habitats, and creating habitats that are structurally alogous to lost floodplain habitats. For those areas where floodplains cannot be reconnected to the river, to goal is to enhance rearing habitat of the levee system by incorporating structural features that provide velocity cover, and restore riparian vegetation. A primary goal is to restore tributary and side channel rearing habitat that is currently isolated.

Contribution toward long-term goal:
The project contributes directly to each goal by preventing further floodplain encroachment where possible, through property acquisition, reconnecting lost habitats, and providing structural improvements to the levee system.

Indirect biological or environmental changes:
Floodplain storage capacity could increase. Terrestrial riparian-dependent species could become more numerous. Non-target aquatic biota that are dependent on similar habitat types could become more numerous.

Physical products:
Twenty miles of side channel and tributary rearing habitat would be reconnected to the mainstem. Twenty deflectors would be constructed. Five thousand riparian shrubs and trees would be planted.

Environmental attributes affected by the project:
Water temperature would decrease, riparian habitat would increase.

Changes assumed or expected for affected environmental attributes:
Near term changes for water quality would be negligible. Long term changes may be significant, in that summer maximum temperatures may be reduced to levels below lethal for many river miles downstream of the project reach.

Assessment of effects on project outcomes of critical uncertainty:
Monitoring will occur in multiple forms. First, implementation monitoring will ensure that projects were built as designed. This will be accomplished through on-site inspection by program staff throughout the construction activity. Second, projects will be monitored for fish utilization for several years following implementation. Project success will ultimately be evaluated based on trends in sub-basin smolt production as measured at the Chandler juvenile trapping facility.

Information products:
The project will report physical accomplishments in terms of habitat protected and or created. Fish utilization will also be monitored and reported. Sub-basin smolt production is routinely reported annually as a task of Chandler facility operation.

MONITORING APPROACH
The region should measure outcomes in terms of long term changes in natural spring chinook smolt production and productivity rates.

Provisions to monitor population status or habitat quality:
Again, the Chandler facility will be an integral part of the monitoring effort. additionally, YIN staff conduct annual spring chinook spawner surveys throughout the sub-basin. These two efforts provide the means to reasobly monitor population status for the target stock.

Data analysis and evaluation:
All sites will be monitored occasiolly to determine the extent to which fish are using them. If fish utilization is lower than anticipated, additional actions will be proposed to remedy identified problems. If longer term natural smolt production doesn't improve as expected, then the viability of the technique will be questioned and our habitat management paradigm will need to be refined.

Information feed back to management decisions:
See previous response.

Critical uncertainties affecting project's outcomes:
We are operating under the assumptions that we have identified most of the conspicuous habitat problems in the sub-basin, that these habitat problems are limiting smolt production, that these habitat problems can be substantially redressed, and that increased natural smolt production will result in corresponding increases in adult escapement. It is not clear that the impacts of irrigation and channelization can be sufficiently offset to meaningfully improve smolt production. The land acquisition component of the project is intuitive. If protecting healthy habitat does not provide any benefits then the fish are in even more trouble than currently feared. Out-of -basin factors could also offset any gains made in pre-smolt survival. None of these uncertainties be resolved.

EVALUATION
See response to "outcomes" above.

Incorporating new information regarding uncertainties:

The project will be modified as needed in response to better information.

Increasing public awareness of F&W activities:
Coordination with the local recreational trail entity, will provide significant educational opportunities. Interpretive sigge will be constructed, volunteers will be recruited to conduct revegetation and monitor water quality.

RELATIONSHIPS

RELATED BPA PROJECT	RELATIONSHIP
8811500	Project complements YFP production objectives
5510400	Restores coho habitat to assist with reintroduction.
5511600 Yakima River Side Channel Enhancement Project	Projects are complimentary
5510200 Yakima Basin Side Channel Survey and Rehabilitation	Projects are complimentary

OPPORTUNITIES FOR COOPERATION:
Cost share opportunities exist with the WDFW Regional Enhancement program, numerous USFWS funding programs, and the Army Corps of Engineers Section 1135 program. The restoration project will be developed in consultation with the BOR, Yakima County Public Works, Army Corps of Engineers, USFWS, WDOE and WDFW. Potential exists to implement individual projects that address chronic flood problems while restoring/enhancing habitat function. Hydraulics Permit Applications (HPA's) will be required for all in-channel work requiring heavy equipment. These will be processed two months prior to anticipated work.

COSTS AND FTE

1997 Planned: $291,880

FUTURE FUNDING NEEDS: **PAST OBLIGATIONS (incl. 1997 if done):**

FY	$ NEED	% PLAN	% IMPLEMENT	% O AND M
1998	$246,000	7%	91%	2%
1999	$100,000	3%	95%	2%
2000	$100,000	3%	95%	2%
2001	$0			

FY	OTHER FUNDING SOURCE	AMOUNT	IN-KIND VALUE
1998	WDFW	$5,000	
1999	Army Corps of Engineers	$100,000	
2000	Army Corps of Engineers	$100,000	

OTHER NON-FINANCIAL SUPPORTERS:
The Yakima Greenway Foundation, the Yakima County Public Works Department and the City of Yakima.

LONGER TERM COSTS:
The project will not require any costs beyond the term indicated above. It may be desirable to spend additional funds doing more of the same sort of work or to enhance the value of work done under the term. Future activities should not be viewed as an obligation to the Fish and Wildlife Program, however.

1997 OVERHEAD PERCENT: 24.2%

HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:
[Overhead % not provided so BPA appended older data.] Percentage is the indirect charge rate for contracts and labor, excluding

capital equipment.

SUBCONTRACTOR FTE: TBD. Sub-contractor will likely employ 3-5 heavy equipment operators and 1-2 laborers.